UNITED STATES PATENT APPLICATION

FOR

AUTOMATED LANGUAGE FILTER FOR HOME TV

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CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims priority to U.S. Patent Application Serial No. 08/954,950 filed 10/21/1997 of which it is a continuation-in-part.

FIELD OF THE INVENTION

This invention relates to a muting device used in conjunction with electronic signals such as television broadcast, signals from videocassette records, etc. More specifically, to a device which utilizes the closed caption signal which is imbedded within the video portion of a television or video signal to identify specific words or phrases. Once an undesirable word or phrase is detected, the invention would then mute the audio portion of the signal without altering the video portion of the television broadcast signal. Further, the closed caption signal is modified in that the offending word is removed from the signal. An acceptable word or phrase may then be inserted in the place of the offensive word.

BACKGROUND OF THE INVENTION

Television communications over the years has become an everyday part of existence in the United States and abroad. These communications include a wide range of words and phrases. Some of the viewers of these communications would prefer that some specific words or phrases not be utilized. Viewers of these programs would like to view these programs but without having to be exposed to undesirable words or phrases. In order to meet this need, the viewing audience needs a means for automatically identifying specific words and/or related phrases and

muting such words or phrases without affecting the video portion of the television or video signal.

Prior art for automatic program recognition and modification follows two different paths. The first path discloses methods of identifying and subsequent blocking out of video signals. U.S. Patent No. 5,484,518 by Hunter, et al., discloses a method and apparatus for the recognition of electronic television broadcast programming and for a choice among available programs. It allows the user to lock out or block out all programs that have not been determined to be suitable to be viewed by all family members. These types of parental control devices work off principles of the time and codes. The devices block a television signal, both video and audio portions, during specific time frames and which have specific rating pursuant to an established rating code. This type of device does not allow the viewer to view the program.

The other line of prior art relates to the splitting of the audio and video portions of the television broadcast signal. U.S. Patent No. 5,408,273 for Okamura discloses a circuit which allows the closed captioned data contained within the video portion of the television signal to be displayed whenever the muting function of the audio portion of the signal has been activated (see also U.S. Patent No. 5,327,716 for Foyler, et al.). This device focuses on displaying the closed captioned data when the audio portion of a signal is muted. This device is an aid when the viewer manually activates the muting function of a television set. It does not act as a monitor of the content of the video portion of the television signal.

The ability to choose what is appropriate for the family is becoming more and more important. Prior art discloses either a method of blocking out an entire program and thus missing important information or by manually muting the audio portion and displaying the closed

captioned text, the closed-captioned data would still include, and thus display specific undesired information on the screen. There is a need in which to mute specific words or phrases while at the same time not effecting the video portion of the signal while displaying a modified closed caption signal.

SUMMARY OF THE INVENTION

The present invention is directed to a method and apparatus for processing a television or video signal in which the closed-captioned data contained within the video portion of the signal is analyzed for specific words or phrases. The present invention then mutes those words or phrases from the audio signal while not effecting the corresponding video portion of the signal. The device will then strip the identified word or phrase from the closed captioned signal, and it may replace it with another word or phrase. The modified closed caption segment may or may not be displayed depending on the devices settings. The mute is disabled when the closed caption command code to erase the modified closed captioned segment is received.

The present invention provides a variety of advantages over the prior art. One object of the invention is to allow parental control over the content of the television signals without necessarily blocking the video portion of the signal. The prior art discloses methods for simultaneously preventing both video and audio portions of a television signal from being heard or viewed. The present invention is able to analyze the closed captioned signal of the video portion of either a television or video signal for undesirable words or phrases. Once a word or phrase is detected, the invention is able to mute the audio portion of the signal without affecting the video signal. Thus, allowing the viewer to see the video portion of the signal but not hear the undesirable audio portion.

Another object of the invention is to mute unacceptable words or phrases at the time of a broadcast of a television signal or at the time when a signal has been received from a storage device such as a video cassette recorder. The processing time in which to analyze the closed caption portion of the video signal is minimal. Thus, the muting affect will occur at or near the time in which the video portion of the signal is displayed on the receiver's screen.

Another object of the invention is to provide a device which operates on technology which is currently available. The invention is based on the closed caption data which is embedded into the video portion of television and video signals. Most of the signals transmitted either via the television broadcast networks or other video players embed closed caption data. By utilizing closed caption data, the present invention is able to operate without having the need to develop new standards or devices.

Another object of the invention to provide the user with options regarding the level of tolerance regarding the amount of words or phrases which will be subject to the muting aspect of the invention. To some users, a specific word is not offensive while at the same time, that word is considered to be unacceptable. By providing a means for selecting different levels of tolerance, the present invention allows users to utilize the invention pursuant to own personal desires.

Another object of the invention is to provide the user with option regarding the levels of displaying the modified closed captioned data. The present invention allows the viewer the option of seeing the entire modified and unmodified closed caption text, seeing only the modified closed captioned text during mute, or not seeing any closed captioned text at all.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a block diagram of the automatic language filter in accordance with the embodiments of the present invention.

Figure 2 is a flow diagram of the automatic language filter in accordance with the embodiments of the present invention.

DETAILED DESCRIPTION OF THE EMBODIMENT

Referring to Figure 1, the automatic language filter 2 in accordance with the embodiments comprises a video input 10, an audio (Left) input 12, an audio (Right) input 14, a closed-captioned data slicer 16, a video-sync separator 18, a micro-processor 20, an on-screen display (OSD) 22, an OSD + Video 24, an analog switch 26, an RF modulator 28, a video (RF) out 30, a video out 32, an audio (Left) out 34, and an audio (Right) out 36.

When a video portion of the television signal is received in video input 10 the closed-captioned data contained therein is extracted and separated from the video feed by closed-caption data slicer 16. That information is then analyzed to see if inappropriate words or phrases are contained therein by microprocessor 20. This analysis is performed by comparing the closed caption data against a library of words and phrases stored within the microprocessor's memory. If any word or phrase is determined to be inappropriate a signal is sent to analog switch 26 to mute the audio portion of the signal as received in audio (Left) input 12 and audio (Right) input 14.

After a word or phrase is determined to be inappropriate, the microprocessor then strips the offensive word or phrase from the closed caption data. A replacement word or phrase is then inserted into the closed caption data.